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still as useful and certainly as readable an introduction as he could desire. Balbiani has contributed additions to our knowledge of reproduction in the Arthropods and in the Vertebrates, and considerable new matter, illustrated with six chromo-lithograph plates, is given in the present volume.

ZITTEL'S HAND-BOOK OF PALÆONTOLOGY.—We have previously noticed this valuable hand-book, which is being issued in parts, the present one being the fourth of Vol. I. This completes the first division of the present volume, which treats of fossil Protozoa, Cœlenterata, Echinodermata and Molluscoidea. The present part finishes the subject of fossil worms, but is mainly devoted to the Molluscoidea, namely the Bryozoa and Brachiopoda, which are placed under the Mollusca. It will thus be seen, that the classification so far from being modern, borders upon the paleozoic. Still the matter under each class heading is detailed, accurate; the fossils are interpreted by reference to the living forms, of which a concise description is given, and, as we have before said, this work of Zittel's, is on the whole, superior to any that the student can obtain.

MCALPINE'S BIOLOGICAL ATLAS.¹—The title sufficiently describes this atlas, the plan of which is pretty good, though often the figures are clumsy, and more or less misleading. For example, the figures of the anatomy of the lobster are coarse, rough, and convey little idea of the parts as they exist in nature; they look as though they were copied from rough colored-chalk diagrams sketched off-hand on the blackboard. The "zoëa of the lobster" is a rough figure of some decapod zoëa, but not the young freshly hatched lobster, which, as the authors should have known, has a much more advanced form than here represented. The drawings of the nervous system and eye of the same animal are abominable. Indeed, we could scarcely recommend the book for use in our schools and colleges. Something much better could have been prepared for the same money.

EATON'S SYSTEMATIC FERN LIST.—Prof. Eaton, of Yale College, has recently issued a "Systematic Fern List," which will prove useful to our botanists, who wish to know what proportion of our native ferns they have in their collections. The list includes all the known ferns of the United States, and gives the geographical range of every species, and is intended "to serve as a check-list, and at the same time to show the classification of the genera." Of the one hundred and fifty-one species enumerated, one hundred and forty are true ferns (order Filices), the remaining eleven be-

¹*Biological Atlas.* A guide to the practical study of plants and animals, adapted to the requirements of the London University, Sciences and Arts Department, and for use in schools and colleges, with accompanying text, containing arrangement and explanation, equivalent terms, glossary and classification. 423 colored figures and diagrams. By D. and A. N. MCALPINE. Edinburgh and London, W. and A. K. Johnston, 1880. 4to, pp. 49.

longing to the order Ophioglossaceæ. Of the true ferns, one hundred and twenty-nine species fall under the sub-order Polypodiaceæ, one under Ceratopterideæ, two under Hymenophyllaceæ, four under Schizæaceæ, and three under Osmundaceæ. The pamphlet, which contains twelve pages, and bears date of September, 1880, may be obtained for ten cents by addressing the author.—*C. E. B.*

THE ZOOLOGICAL RECORD FOR 1878.¹—The fifteenth volume of this series is a little more bulky than the fourteenth, an evidence that the cultivators of the science of zoölogy are neither diminishing, nor the number of notices, articles and works contributed by them to journals and transactions. The editor and his assistants are the same as in the preceding volume, and we may feel sure that the omissions and errors inevitable to such work are comparatively few. It is a pity that so large a proportion, indeed almost the entire volume, is taken up with references to descriptions of new genera and species; these seem unfortunately to be as numerous as ever, and to draw away the attention of zoölogists, from the more pressing and legitimate objects of study.

The space devoted to biological and anatomical zoölogy should, it seems to us, be much greater than at present, and be made fully as prominent a topic as purely descriptive work; for this reason the parts on Cœlenterata and Echinodermata, Mollusca and Crustacea, with their analyses of discoveries made in the anatomy and physiology of these animals, is treated with more care and judgment than some other chapters. It seems to us that abstracts of articles in such journals as Siebold and Kölliker's *Zeitschrift für wissenschaftliche Zoölogie*, Troschel's *Archiv für Naturgeschichte*, and the similar French journals of Milne-Edwards and Lacaze Duthiers, as well as the *Quarterly Journal of Microscopical Science*, should be fuller, as these periodicals really contain the best material, *i. e.*, that which contributes most to the advancement of the science, and is or should be most eagerly read by students. As the new species get worked up, we may hope that more room will be found for such abstracts, as these are especially desirable for American students, who are exposed to the temptation of forsaking the true objects of zoölogical study, and betaking themselves to the mechanical, and not particularly intellectual work of describing new species and genera, and preparing local faunal lists without reference to future monographical work.

We may add what we have said in notices of previous volumes of this series, that no American student of systematic zoölogy can afford to be without the *Record*, particularly those living away from large libraries.

JOURDAN'S ZOANTHARIAN CORALS OF THE GULF OF MARSEILLES. This important and well illustrated memoir, which appears in

¹ *The Zoölogical Record for 1878*; being volume fifteenth of the Record of Zoölogical Literature. Edited by E. C. Rye, F. L. S., etc. London, 1880. 8vo.